**Project 4: Leap Years**

In this Java programming assignment, you will practice using selection statements to determine whether a given year in the past or future qualifies as a “Leap Year”.

1. Design a class called **LeapYear** in a file called **LeapYear.java**. This class will hold the main method, and the class method that we will write in this assignment.
2. Write an empty **public static void main(String[] args)** method. This method should appear inside the curly braces of the LeapYear class.
3. Write one static class method (**isLeapYear**). The method **isLeapYear** should take one integer argument and will return a boolean. The method should compare the input (a year) with the qualifications for determining whether a given year is a leap year or not, and return the appropriate true or false value on completing these checks. The rule for leap years is as follows: if the year is evenly divisible by 4, it is a leap year, except in the case where it is also evenly divisible by 100 but not evenly divisible by 400. Several example method calls appear below.

**LeapYear.isLeapYear(2016) // returns true, divisible evenly by 4**

**LeapYear.isLeapYear(2015) // returns false, not divisible evenly by 4**

**LeapYear.isLeapYear(1900) // returns false, divisibly evenly by 4 but also by 100**

**LeapYear.isLeapYear(2000) // returns true, divisibly evenly by 4 and 100, but also by 400**

1. Complete the definition for main. Your program should create a new **Scanner** object, prompt the user to type in a year, and then collect an integer. The **main** method should then call the static method **isLeapYear** in order to determine whether or not the year in question fits the characteristics of a leap year. From this point, the results of the method call should be used to print a statement that expresses the results. For example, if the user enters 2015 as input:

“The year 2015 is not a leap year.”

1. Submit your **LeapYear.java** file on Blackboard.

For those students that feel confident and would like an extra challenge, add the following elements to your code before submitting.

1. Make an adjustment to your **main** method, so that the prompt now will ask for a year and return the number of leap years that have occurred in the time between the date given and the current date. For an additional challenge, print out all of the years that qualify as leap years.